Clean copy of claims:

1. A nucleic acid molecule encoding a human Rhesus D antigen contributing to or indicative of the weak D phenotype, said nucleic acid molecule carrying at least one missense mutation, as compared to the wild type Rhesus D antigen set forth as SEQ ID NO:41, in its transmembrane and/or intracellular regions.

2. A nucleic acid molecule encoding a human Rhesus D antigen contributing to or indicative of the weak D phenotype, said nucleic acid molecule
   a) carrying at least one missense mutation, as compared to the wild type Rhesus D antigen set forth as SEQ ID NO:41, in amino acid positions 2-16, 114-149, 179-225 or/and 267 to 397 with the proviso that said D antigen does carry not a single missense mutation leading to a substitution of phenylalanine in amino acid position 223 by valine or of threonine in position 283 by isoleucine; or
   b) carrying a gene conversion involving exons 6 to 9 which are replaced by the corresponding exons of the RHCE gene.

3. The nucleic acid molecule of claim 1 or 2 wherein said missense mutation causes an amino acid substitution in position 3, 10, 16, 114, 149, 182, 198, 201, 220, 223, 270, 276, 277, 282, 294, 295, 307, 339, 385 or 393 or a combination of said substitutions.

4. The nucleic acid molecule of claim 3 wherein said amino acid substitution in position 3 is from Ser to Cys, in position 10 from Arg to Gln, in position 16 from Trp to Cys, in position 114 from Arg to Trp, in position 149 from Ala to Asp, in position 182 from Ser to Thr, in position 198 from Lys to Asn, in position 201 from Thr to Arg, in position 220 from Trp to Arg, in position 223 from Phe to Val, in position 270 from Val to Gly, in position 276 from Ala to Pro, in position 277 from Gly to Glu, in position 282 from Gly to Asp, in position 294 from Ala to Pro, in position 295 from Met to Ile, in position 307 from Gly to Arg, in position 339 from Gly to Glu, in position 385 from Gly to Ala or in position 393 from Trp to Arg.

5. The nucleic acid molecule of any one of claims 1 or 2 wherein said missense mutation occurs in nucleotide position 8, 29, 48, 340, 446, 544, 594, 602, 658, 667, 809, 819, 826, 830, 845, 880, 885, 919, 1016, 1154 or 1177 or in a combination of said positions.

6. The nucleic acid molecule of claim 5 wherein said missense mutation in position 8 is from C to G, in position 29 from G to A, in position 48 from G to C, in position 340 from C to T, in position 446 from C to A, in position 544 from T to A, in position 594 from A to T, in position 602 from C to G, in position 658 from T to C, in position 667 from T to G, in position 809 from T to G, in position 819 from G to A, in position 826 from G to C, in position 830 from G to A, in position 845 from G to A, in position 880 from G to C, in position 885 from G to T, in position 919 from G to A, in position 1016 from G to A, in position 1154 from G to C and in position 1177 from T to C.

7. The nucleic acid molecule of claim 3 wherein said combination of substitutions is in positions 182, 198 and 201 or in position 201 and 223, or in position 16, 201 and 223.

8. The nucleic acid molecule of claim 5 wherein said combination of missense mutations comprises positions 544, 594 and 602 and is T to A at position 544, A to T at position 594 and C to G at position 602 or comprises positions 602, 677 and 819 and is C to G at position 602, T to G at position 667 and G to A at position 819 or comprises positions 48, 602, 667 and 819 and is G to C at position 48, C to G at position 602, T to G at position 667 and G to A at position 819.

9. The nucleic acid molecule of any one of claims 1 or 2 wherein said molecule is mRNA or genomic DNA.

10. A vector comprising the nucleic acid molecule of any one of claims 1 or 2.

11. A host cell transformed with the vector of claim 10.

12. A method of producing a Rhesus D antigen contributing to the weak D phenotype comprising culturing the host cell of claim 11 under suitable conditions and isolating the Rhesus D antigen produced.

14. An oligonucleotide hybridizing under 0.1X SSC, 0.1% SDS at 65^0 C hybridization and washing conditions to a portion of the nucleic acid molecule of any one of claims 1 or 2 comprising said at least one missense mutation or to the complementary portion thereof or hybridizing to a region involving the breakpoint of the gene conversion identified in claim 2.

48. Kit comprising the oligonucleotide of claim 14.

49. The nucleic acid molecule of claim 7, wherein said combination of substitutions in positions 182 is from S to T, 198 from K to N, and 201 from T to R; positions 201 is from T to R and 223 from F to V; or in positions 16 is from W to C, 201 from T to R, and 223 from F to V.

50. The oligonucleotide of claim 14, said oligonucleotide 12 to 50 nucleotides in length.

51. The oligonucleotide of claim 14, said oligonucleotide 15 to 24 nucleotides in length.